



Acantholimon riyatguelii (Plumbaginaceae), a threatened new unarmed species from Central Anatolia, Turkey

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Abstract

Acantholimon riyatguelii is described as a new species. Diagnostic morphological characters, a full description and detailed illustrations are provided on the basis of the type specimen and wild exemplars. This outstanding new species is a strict gypsophyte, which is characterized by the dwarf caespitose perennial habit, not forming dense thorny cushions; leaves are homomorphic, hairy, short and quite soft, not pungent but mucronate, swollen-fleshy and calcareous-punctate; spikes are unbranched, very compact, distichous, longer than leaves; spikelets are numerous and quite regularly imbricate; and the calyx is 5-lobed, with whitish limb. These combination of morphological characters in not known in any other Turkish *Acantholimon* species, and allows easy identification. The main morphological traits of *A. riyatguelii* suggest inclusion in *A.* sect. *Staticopsis*, though in an isolated position for which a new subsection, *A.* subsect. *Exacantha*, is described. Morphological affinities and divergences to other members of that section are discussed. Furthermore, data are reported on the conservation status of *A. riyatguelii*, which is suggested to be labelled as CR according to the IUCN categories.

Key words: *Acantholimon*, Central Anatolia, conservation, endemisms, gypsophytes, sect. *Staticopsis*, subsect. *Exacantha*, taxonomy, Turkey

Introduction

The genus *Acantholimon* Boissier (1846: 69) includes perennial, densely or laxly pulvinate subshrubs forming thorny cushions. It is currently accepted to contain about 200 taxa, mainly distributed from southeastern Europe to Central Asia (Kubitzki 1993). The main distribution centres of the genus are located in the eastern Mediterranean and the Irano-Turanian phytogeographic regions (Bokhari 1970), in which many narrow endemics occur. Taxa of *Acantholimon* have economic importance, mostly in gardening because the coloured and long-lasting flowers (Muvaffak *et al.* 2001).

The genus was first described (Boissier 1846) to segregate those species with pungent leaves and flowers arranged in spike-like or capitate inflorescences, which had formerly been referred to *Statice* Linnaeus (1753: 274) *nom. rej.*, or later to *Statice* subg. *Armeriastrum* Jaubert & Spach (1843: 248). Subsequent monographic studies by Boissier (1848) and Bunge (1872) resulted in recognition of 74 species by the former in his *Flora orientalis* (Boissier 1879).

Taxonomic research undertaken during the last 40 years has notably improved the knowledge of *Acantholimon* in Turkey and the neighbouring areas. Bokhari (1970, 1972) performed comprehensive studies on Plumbaginaceae Juss., which led to description of six new Turkish *Acantholimon* species. The most recent treatment of the genus in Flora of Turkey (Bokhari & Edmondson 1982) accepted 25 species, plus two imperfectly known species and nine doubtfully recorded ones. Further work carried out by Doğan & Akaydın (2001, 2002a, 2002b, 2003, 2004, 2005), Akaydın & Doğan (2002) and Akaydın (2004) resulted in the description of 12 new Turkish species. This remarkable effort was later completed by Doğan and Akaydın (2007), who named seven new taxa at different ranks, resurrected three species formerly treated in synonymy, and confirmed the occurrence of eight additional species in Turkey. In the latter contribution, Doğan and Akaydın (2007) presented a comprehensive synopsis of Turkish *Acantholimon*, in which they definitively recognized 52 species, 10 subspecies, and 17 varieties. On the basis of biometric analyses, Doğan *et al.* (2007) rearranged all those taxa in a new system including three sections and five subsections.

A. riyatguelii is here assessed as “Critically Endangered” (CR) B2ab(i,ii,iii), on account of its restricted distribution in Turkey with an inferred severe decline of the extent of occurrence, the occupancy area and quality of the habitat. In consequence, this new Irano-Turanian element stands among other Turkish threatened endemic taxa of *Acantholimon* (cfr. Doğan *et al.* 2011).

Urgent legal measures should be implemented to ensure conservation of *A. riyatguelii*, which should be included in the red list of Turkish vascular plants. Similarly, the habitat in which it grows should also be protected, since gypseous outcrops of Central Anatolia host a remarkable phytodiversity with a high number of narrow endemics (cfr. Yıldırım 2012) in need of conservation.

Diagnostic key for the subsections of *Acantholimon* sect. *Staticoides*

1. Leaves fleshy, mucronate, not pungent, calcareous-punctate.....subject. *Exacantha*
- Leaves not fleshy, acuminate to aristate, pungent, not calcareous-punctate2
2. Remains of leaves of the previous year circinate; calyx limb reddish-brown or purplish (occasionally whitish) at anthesis3
- Remains of leaves of the previous year not circinate; calyx limb whitish at anthesis4
3. Spikes (1–)2–5 ramose; spikelets densely arranged, the lowermost longer than rachis internodes subject. *Circinata*
- Spikes simple; spikelets very laxly arranged, the lowermost shorter than rachis internodes..... subject. *Robusta*
4. Leaves linear-lanceolate, flat; inner bracts of the spikelets retuse-mucronate; calyx limb with excurrent ribssubject. *Dianthifolia*
- Leaves usually triquetrous, subulate; inner bracts of the spikelets acute, usually aristate to cuspidate; calyx limb without excurrent ribs5
5. Spikes simple, elongated; spikelets laxly arranged; outer bract equalling or at most 1.5 times longer than rachis internodes subject. *Caryophyllaceae*
- Spikes 2-branched (occasionally simple), usually short; spikelets densely arranged, imbricate or congested apically; outer bract at least twice longer than rachis internodes..... subject. *Androsaceae*

Additional specimens examined:—*A. anatolicum*: TURKEY. **A3 Ankara**: Kuş Cenneti between Çayırhan and Nallıhan, deep gypseous sandy soil on mountain slopes, 500 m, 19 Aug 2000, Doğan 2007 & Akaydın (ANK-holotype!). *A. avanosicum*: TURKEY. **B5 Nevşehir**: between Avanos–Hacıbektas, 3 km from Avanos, clay stone slopes, 950 m, 20 Aug 2000, Doğan 2052 & Akaydın. (ANK-holotype!). *A. birandii*: TURKEY. **C4 Karaman**: On the road to Bucakkışla, 23 km from Karaman, 1350 m, 23 Aug 2000, Doğan 2081 & Akaydın (ANK-holotype!). *A. confertiflorum*: TURKEY. C4 Konya: Bozkır, on calcareous soil, 1100 m, 07 Sept 1949, Davis 16600 (E327026-holotype!). *A. dianthifolium*: TURKEY. **C10 Hakkari**: Sat Da. (above Yüksekova), near permanent snow beds, patches of earth in the rocks, 2900 m, 28 Aug 1967, Duncan & Tait 91 (E175344-holotype!). *A. karamanicum*: TURKEY. **C4 Karaman**: between Başyayla and Taşkent, Turanşah, calcareous mountain slopes in open *Quercus cerris* scrub, 1600 m, 24 Aug 2000, Akaydın 6518 & Doğan (ANK-holotype!).

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